Management Unit of the North Sea Mathematical Models
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A large synoptic dataset of coastal in situ observations

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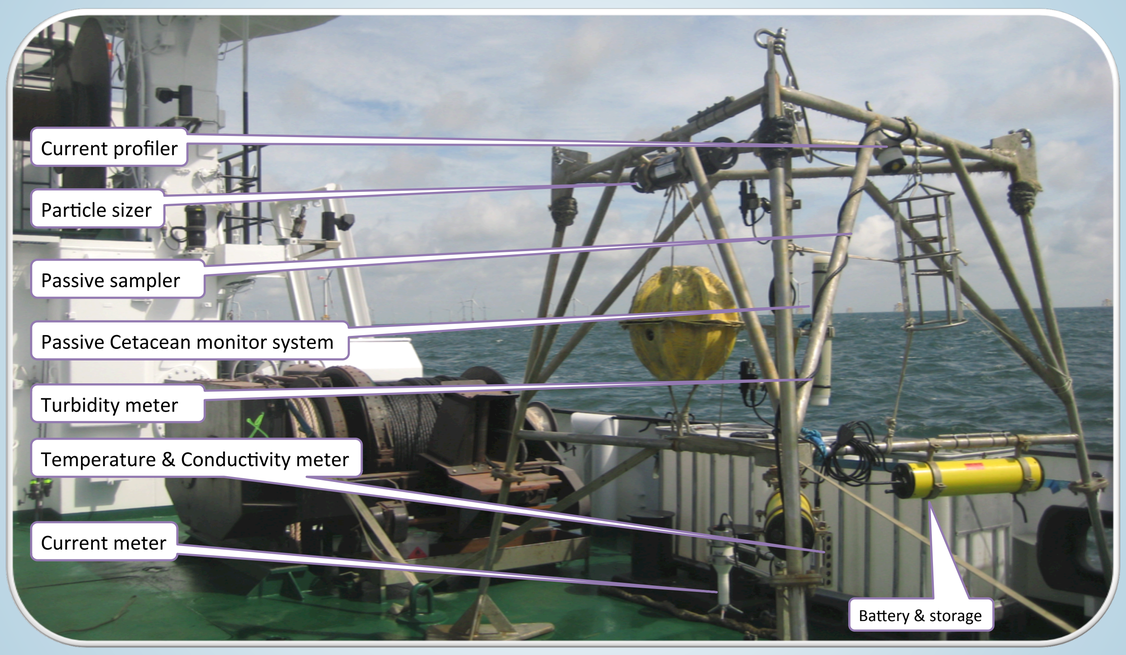
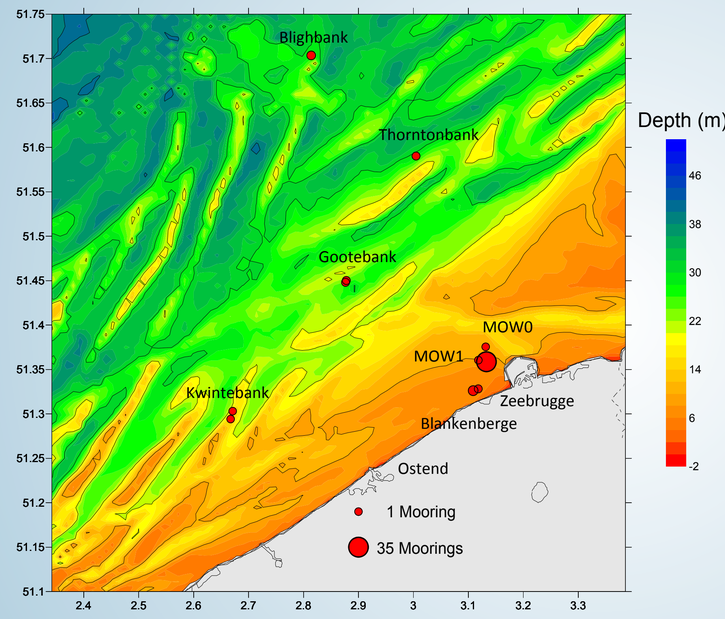
Abstract

Since the beginning of 2004 MUMM has performed a series of moorings in the Belgian Coastal Zone with a tripod or benthic lander, equipped with a series of oceanographic sensors. Current meters such as an Acoustic Doppler Profiler (ADP) and an Acoustic Doppler Velocimeter (ADV), a CT-sensor capable of measuring temperature and salinity, optical (OBS) and acoustic backscatter sensors (ADP and ADV) to measure suspended sediment concentration, a LISST 100 suspended particle sizer, a passive Cetacean monitoring device (C-PoD) and a passive sampling device for chemical monitoring have ever since been moored for more than 1750 days. From autumn 2009 a permanent coastal observatory has been installed at MOW1, located to the west of the entrance to the Zeebrugge harbor. Other mooring sites include more offshore locations, such as the Kwintebank, Gootebank, MOW0 and the offshore windmill farms and a very nearshore location (Blankenberge).

Tripod

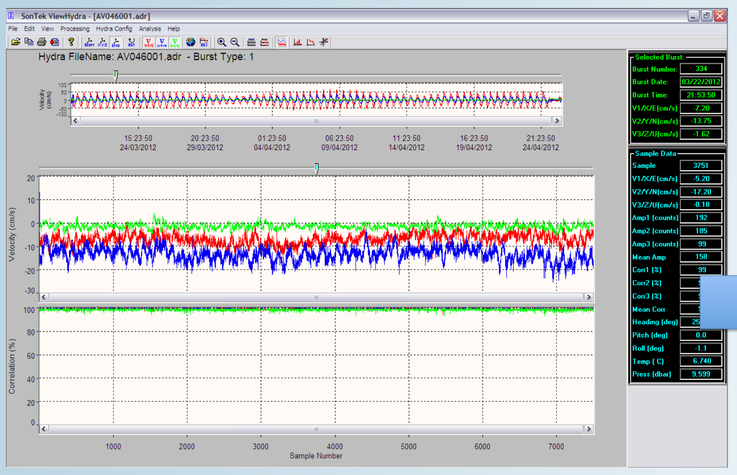


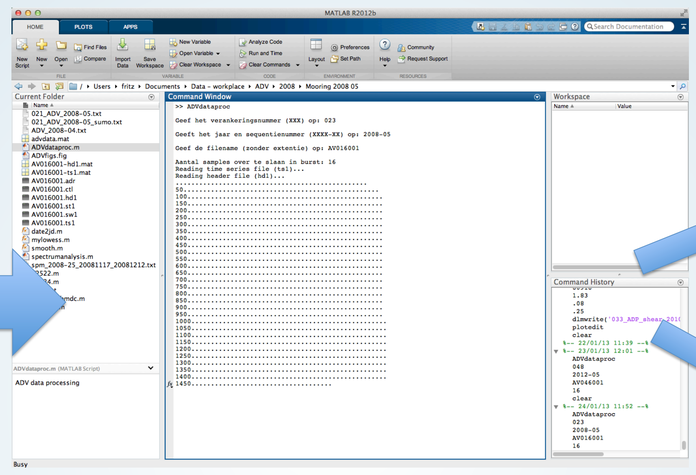
Moorings

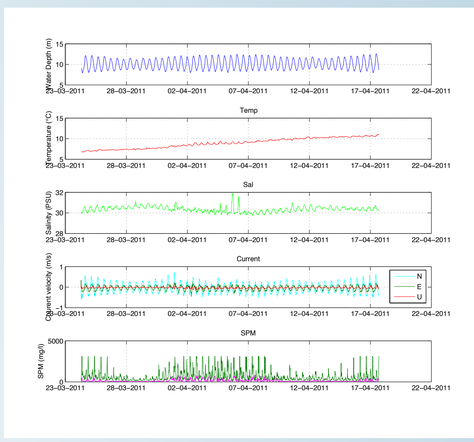


Year	# Moorings	# Days
2004	3	38
2005	4	45
2006	6	165
2007	2	45
2008	5	151
2009	10	369
2010	9	322
2011	10	334
2012	8	297
Total:	**57 moorings**	**1766 days**

Data Processing







The instruments have already recorded several GB worth of data files, but the data need to be processed before they can lead to a large synoptic dataset. This processing includes the transformation from a binary file to a readable ASCII format and is done by proprietary software.

The subsequent step consists of the actual processing of the data, the quality control to identify instrument failure or biofouling and calculation of derivative parameters (such as bottom shear stress, turbulent kinetic energy and settling velocity) using MatLab scripts.

ASCII datasets will be made available through the BMDC website:
http://www.mumm.ac.be/datacentre/

Conclusion

The data collected have increased our understanding of sediment dynamics in response to tidal and wind-driven flow and this during both good and bad weather conditions and from short (turbulence) to long-term scales (seasonal variations).

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